

Direct Analysis of Chemical Warfare Simulant Aerosol by Paper Spray Mass Spectrometry



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There is a growing need for improved analysis of aerosolized chemical warfare agents (CWAs). Current detection methods (ion mobility spectrometry, colorimetric paper, etc.) suffer from poor resolution, detector saturation and sensitivity to temperature and humidity. Paper spray ionization mass spectrometry (PS-MS) offers a rapid alternative platform that requires no sample preparation. Aerosolized CWA simulants, trimethyl phosphate (TMP), dimethyl methylphosphonate (DMMP), and diisopropyl methylphosphate (DIMP), were captured in the traditional manner ('gold-standard') by passing the air through a glass fiber filter disk or by capturing it directly onto Prosolia's paper spray cartridge consumable. Both approaches were performed in tandem and rigorously compared.

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